



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

ROGERS et al

Atty. Ref.: **4271-23**

Serial No. **10/829,443**

Group: **1713**

Filed: **April 22, 2004**

Examiner: **Sastri**

For: **FLAME RETARDANT THERMOSET RESINS AND METHODS OF MAKING THE SAME**

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF MARTIN E. ROGERS

Sir:

Pursuant to 37 CFR §1.132, the undersigned, **Martin E. ROGERS**, hereby declares and states:

1. I am a co-inventor of the invention described and claimed in the above-identified patent application.
2. I am familiar with U.S. Patent No. 6,313,231 B1 to Hosokawa et al (hereinafter "Hosokawa et al") which on information and belief has been cited and applied by the Examiner to reject pending claims 1-4 and 12-16 under 35 USC §102(b). More specifically, Hosokawa et al discloses superabsorbent resin compositions containing a chelating agent, such as phosphoric acid and sodium salts thereof, which the Examiner asserts anticipates the herein claimed flame retardant superabsorbent (SAP) particles.
3. Under my direction and control, the following Comparative Examples 1 and 2 were conducted by incorporating a dried residue of disodium phosphate (a

sodium salt of phosphoric acid) and phosphoric acid in a SAP microsphere at the maximum levels contemplated by Hosokawa et al, namely at a level of 5 parts by weight:

Comparative Example 1: Poly(acrylamide-co-poly(ethylene oxide)methacrylate) microspheres (15 grams) were combined with disodium phosphate (0.80 grams) and water (5 grams) and then dried for 4 hours at 110°C and 20 hours at 130°C in a vacuum oven. The resulting microspheres therefore contained 5 parts by weight of the disodium phosphate. The microspheres were then blended with an epoxy resin composed of 28.70 grams of D.E.R.™ 331 epoxy resin (Dow Chemical) and 10.30 grams of EpiKure™ 9551 curing agent (Resolution Performance Products LLC) using a high speed mixer. The resin was then degassed in a vacuum oven and poured into a 7 cm diameter aluminum pan. The resin sample was allowed to cure at room temperature for 18 hours and then cured at 120°C for 2 hours. The cured resin disk was suspended on a wire and the bottom side of the disk was exposed to a propane torch flame for 60 seconds. The torch flame was removed and the disk continued to burn for 8 minutes and 19 seconds. The sample lost 46% of its weight.

Exhibit 1 attached hereto is a photograph showing the sample of Comparative Example 1 at the start of flame exposure, while the attached Exhibit 2 is a photograph showing the sample of Comparative Example 1 at 5 minutes and 30 seconds after flame exposure.

Comparative Example 2: Poly(acrylamide-co-poly(ethylene oxide)methacrylate) microspheres (15 grams) were combined with 85% phosphoric acid (0.90 grams) and water (3 grams) and then dried for four hours at 110°C and 20 hours at 130°C in a vacuum oven. The resulting

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microspheres therefore contained 5 parts by weight of the phosphoric acid. The microspheres were then blended with an epoxy resin composed of 28.70 grams of D.E.R.™ 331 epoxy resin (Dow Chemical) and 10.30 grams of EpiKure™ 9551 curing agent (Resolution Performance Products LLC) using a high speed mixer. The resin was then degassed in a vacuum oven and poured into a 7 cm diameter aluminum pan. The resin sample was allowed to cure at room temperature for 18 hours and then cured at 120°C for 2 hours. The cured resin disk was suspended on a wire and the bottom side of the disc was exposed to a propane torch flame for 60 seconds. The torch flame was removed and the disk continued to burn for 8 minutes and 48 seconds. The sample lost 33% of its weight.

4. Comparative Examples 1 and 2 clearly demonstrate that incorporating chelating agents in SAP microspheres at the maximum level disclosed by Hosokawa et al, namely 5 parts by weight, does not impart flame retardant properties to the SAP.
5. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully Submitted,

March 24, 2005

Dated


Martin E. ROGERS



Exhibit 1

Example 1 at start of flame exposure



Exhibit 2

Example 1 at 5 minutes and 30
seconds after flame exposure.

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